ABSTRACT

An optical processing method includes: receiving an optical signal from an optical system, wherein the optical signal is distorted by frequency-dependent polarization effects in the optical system; spatially dispersing frequency components of the distorted optical signal on a spatial light modulator (SLM); and independently adjusting the polarization transfer matrix of multiple regions of the SLM to reduce the distortion of the optical signal. A related optical processing method includes: providing a precompensation signal indicative of frequency-dependent polarization effects in a downstream optical system; spatially dispersing frequency components of an optical signal on a spatial light modulator (SLM); and independently adjusting the polarization transfer matrix of multiple regions of the SLM to at least partially precompensate the optical signal for distortions caused by the frequency-dependent polarization effects in the downstream optical system. Another related optical processing method includes: providing a model of the frequency-dependent polarization effects; spatially dispersing frequency components of the optical signal on a spatial light modulator (SLM); and independently adjusting the polarization transfer matrix of multiple regions of the SLM based on the model to emulate the optical signal transmission.